

## CLAIMS:

1. An ink drying system for high speed printing on a traveling sheet of material, the system being coupled to a source of pressurized gas and comprising:

a plurality of plenums disposed so as to extend over the sheet, said plenums

5 each including an associated plurality of orifices spaced apart from one another so as to define respective drying portions thereof;

a corresponding plurality of fluid flow valves for controlling fluid communication between said plenums and the source of pressurized gas; and

10 a controller for controlling said valves, said controller being adapted to operate said valves independently of one another in response to information about said printing.

2. The system of claim 1, wherein said drying portions provide substantially complete laterally extending coverage of the sheet, and wherein the drying portion of at least one of said plenums provides a substantially different range of laterally extending coverage of the sheet than at least one other of said plenums.

3. The system of claim 2, wherein at least two of said plenums are spaced

substantially apart from one another in a direction of travel of the sheet by a predetermined distance, and wherein the drying portions of said plenums are each substantially laterally co-extensive.

4. The system of claim 1, wherein a quantity of the ink is defined by a  
5 spatially varying distribution, and wherein said controller is adapted, based on said distribution, to select one of said plurality of plenums to receive more of the pressurized gas than at least some of the other of said plenums.

5. The system of claim 2, wherein a quantity of the ink is defined by a  
10 spatially varying distribution, and wherein said controller is adapted, based on said distribution, to select one of said plurality of plenums to receive more of the pressurized gas than at least some of the other of said plenums.

6. The system of claim 3, wherein said controller is adapted to select one of  
said two plenums to receive a first predetermined amount of the pressurized gas at a first time, and to select the other of said two plenums to receive a second predetermined  
15 amount of the pressurized gas at a second time, wherein said second amount of the pressurized gas is predetermined based on said first amount, and wherein the difference between said first time and said second time is substantially equal to said distance divided by the speed of travel of the sheet.

7. A method for drying ink in a high speed printing system, the ink being

deposited on a traveling sheet of material, the system being coupled to a source of pressurized gas and comprising the steps of:

providing a first plenum disposed so as to extend over the sheet;

providing a second plenum disposed so as to extend over the sheet,

5                    wherein said plenums each include an associated plurality of orifices spaced apart from one another so as to define respective drying portions thereof;

identifying a spatially varying distribution of the ink;

10                   identifying one of said plenums for which said orifices most closely matches said distribution; and

selecting said one plenum to receive more of the pressurized gas than the other of said plenums.

8.            A method for drying ink in a high speed printing system, the ink being deposited on a sheet of material traveling in a predetermined direction, the system being  
15            coupled to a source of pressurized gas and comprising the steps of:

providing a first plenum disposed so as to extend over the sheet;

providing a second plenum disposed so as to extend over the sheet,

wherein said plenums each include an associated plurality of orifices spaced apart from one another so as to define respective drying portions thereof, wherein said plenums are spaced substantially apart from one another in the direction of travel of the sheet a predetermined distance, and wherein the drying portions of said plenums are each substantially laterally co-extensive;

selecting one of said two plenums to receive a first predetermined amount of the pressurized gas at a first time; and

selecting the other of said two plenums to receive a second predetermined amount of the pressurized gas at a second time, wherein said second amount of the pressurized gas is predetermined based on said first amount, and wherein the difference between said first time and said second time is substantially equal to said distance divided by the speed of travel of the sheet.